R E P O R T R E S U M E S

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STATE OF NEW YORK STANDARD SCHOOL PLAN TYPE B-1, ONE-STORY JUNIOR HIGH SCHOOL 800 EXPANDABLE TO 1000 STUDENTS.

NEW YORK STATE DEPT. OF PUBLIC WORKS, ALBANY
LYMAN (DUANE) AND ASSOCIATES, BUFFALO, N.Y.

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DESCRIPTORS- *JUNIOR HIGH SCHOOLS, *SCHOOL DESIGN, *SCHOOL LOCATION, SCHOOL CONSTRUCTION, SCHOOL EXPANSION, SCHOOL SPACE,

THE DESIGN OF THIS ONE-STORY, ECONOMICALLY-PLANNED JUNIOR HIGH SCHOOL IS DEVELOPED TO SUIT A GENERALIZED SET OF AREA CHARACTERISTICS. THE FEATURES OF THIS SCHOOL FOR 800 TO 1000 PUPILS ARE SUITABLE FOR EITHER A RAPIDLY DEVELOPING SUBURB OF A LARGE CITY OR THE OUTSKIRTS OF A RAPIDLY GROWING VILLAGE. THE BASIC SITE OF 20 TO 30 ACRES SUPPORTS A TIGHT COMPACT PLAN OF A REASONABLY OPEN AND FLEXIBLE CHARACTER. THE CLASSROOMS ARE ARRANGED IN THREE COURT-SEPARATED WINGS WHICH OPEN OFF THE MAIN CORRIDOR. INCLUDED AS DESIGN CONSIDERATIONS ARE--(1) A SCHEDULE OF SPACES, (2) IMPORTANT DESIGN PROVISIONS, (3) EXPANSION DATA, (4) CONSTRUCTION DATA, AND (5) PROJECT IMPLEMENTATION INFORMATION. A FLOOR PLAN IS CONCLUDED. (MH)

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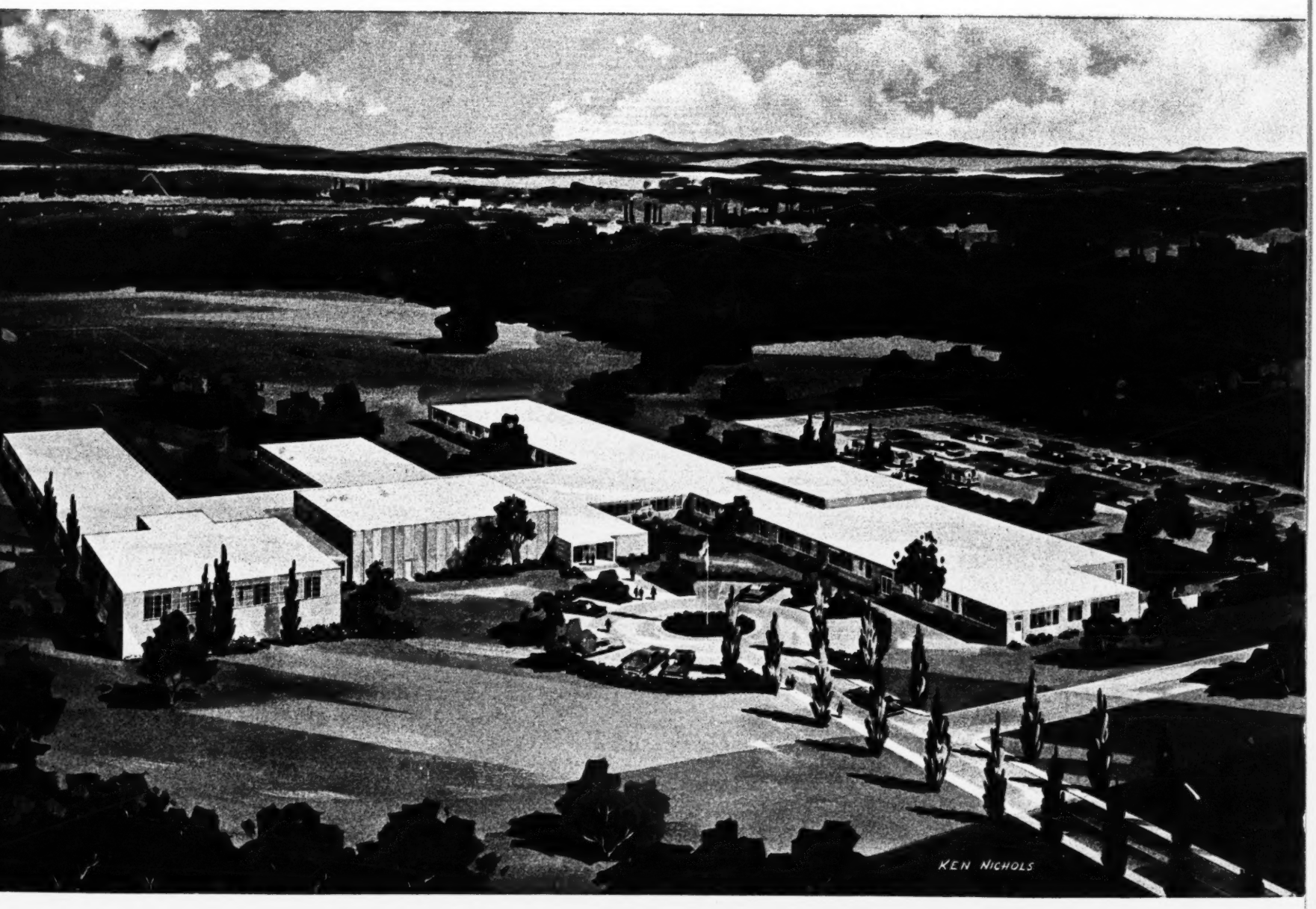
STATE OF NEW YORK
STANDARD SCHOOL PLAN
TYPE B-1



EXPANDABLE JUNIOR HIGH SCHOOL 800 TO 1000 PUPILS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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STATE OF NEW YORK

STANDARD SCHOOL PLAN

TYPE B-1, ONE-STORY

JUNIOR HIGH SCHOOL

800 EXPANDABLE TO 1000 STUDENTS

-REPORT-

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JAMES E. ALLEN, JR., COMMISSIONER OF EDUCATION

DEPARTMENT OF PUBLIC WORKS

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PREFACE

Instructions from the Office of the State Architect.

"It is the duty of the architect to design this school building using imagination, ingenuity and experience to develop plans that are both flexible, and durable, and at the same time give the best possible educational facilities at the lowest possible building costs."

Problem due to lack of Site.

Due to a complete absence of any knowledge of the character, extent and orientation of the site, including the boundaries and location of approaches, solution of site problems cannot be developed or presented as a part of this report.

It is to be hoped that any Board of Education interested in the use of this plan will obtain copies before selecting a site, and will endeavor to select a site of a character, extent and orientation and soil condition appropriate to the plan, which has of necessity been developed for a level site with the principle approach at the entrance side of the building.

ROOM SCHEDULE OF EDUCATIONAL FACILITIES AS PROVIDED IN PLAN TYPE B-1

TEACHING SPACES

No.	Title or Use	Comments
2	Industrial Arts	Storage Additional
2	Homemaking	
2	Art	Storage in Rooms
4	Science	Storage Additional
24	Classrooms	Varying in size
1	Music	Suite
1	Double Gymnasium	Showers-Lockers
1	Auditorium	Capacity - 500
1	Library	Related Areas

FOR FUTURE EXTENSION

5	Regular Classrooms	
1	Teachers' Room	
2	Science Rooms	

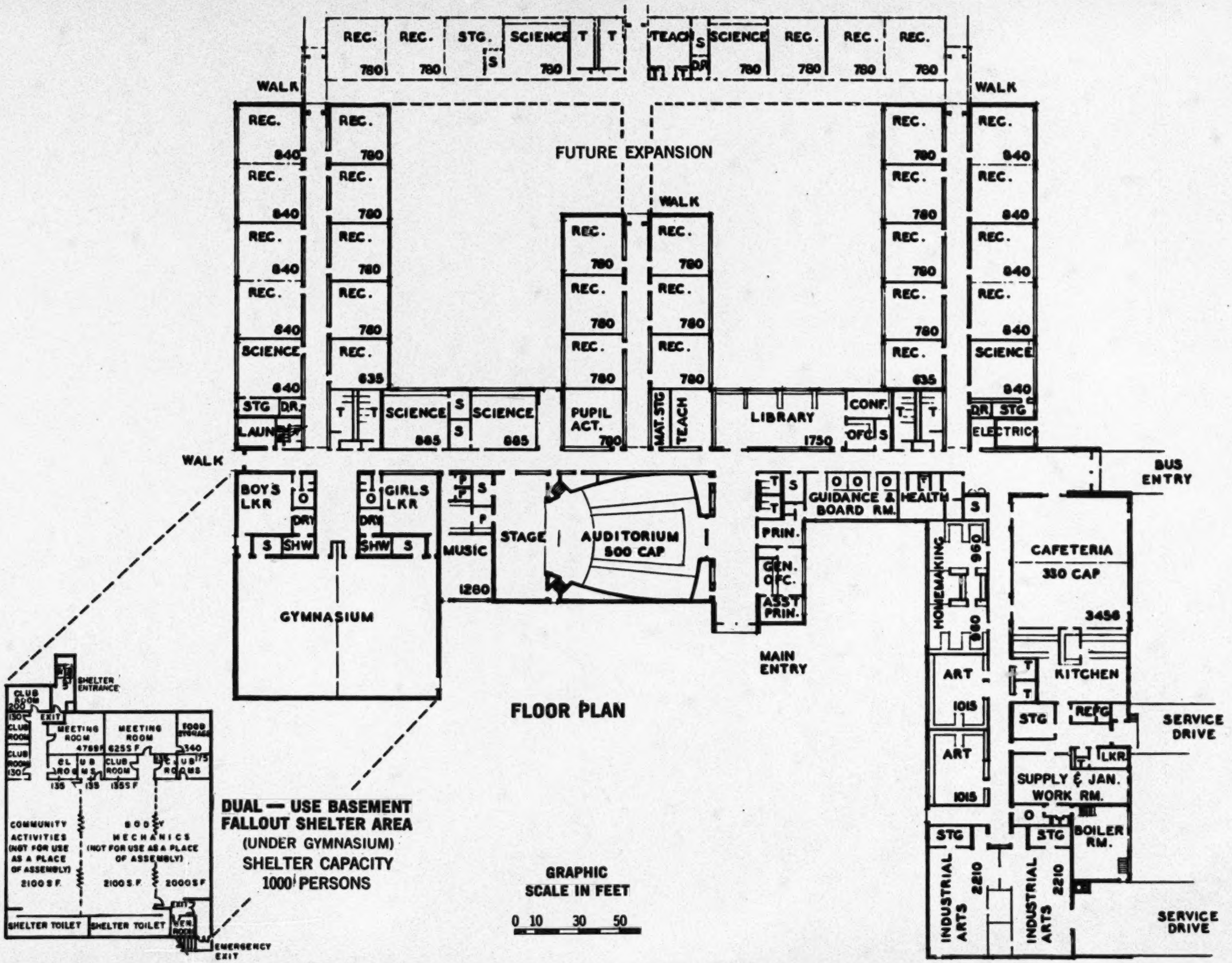
ADMINISTRATIVE, PERSONNEL & COMMUNITY SPACES

No.	Title or Use	Comments
1	Administration	Suite
1	Guidance- Board Room	Related Areas
1	Health	Suite
1	Pupil Activity Room	
1	Teachers' Room	Combined
1	Cafeteria	
1	Kitchen	Related Areas

DUAL USE SHELTER AREA

2	Toilets
1	Generator Room
1	Body Mechanics Area
1	Community Activities Room
8	School Club Rooms
2	Meeting Rooms
1	Food Storage

NOTE: The areas of all spaces noted above can be found in the floor plans.



FLOOR PLAN

DUAL — USE BASEMENT FALLOUT SHELTER AREA
(UNDER GYMNASIUM)
SHELTER CAPACITY
1000 PERSONS

GRAPHIC SCALE IN FEET
0 10 30 50

REPORT: H.Y.S. STANDARD SCHOOL TYPE B-1

REPORT ON STANDARD SCHOOL PLAN TYPE B-1

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1. General Educational Considerations.

In developing the design careful consideration was given to the climate and general character of the areas in New York State in which this design for a 800 to 1000 pupil, one-story, economically planned Junior High School was most likely to be used.

It was reasonably obvious that it would, in all probability, not be used in a city due primarily to its one story character and the consequent large amount of land required.

The great development and growth of the suburbs and some of the smaller villages determined the probable locations:-

a. Either in a rapidly developing suburb of a large city, or

b. In the outskirts of a rapidly growing village.

In either instance it would require a site of a minimum of 20 acres and preferably one of 30 acres.

Accompanying the great need of modern school facilities in many such areas in the state are, as well, the urgent needs of water, gas, electricity and sewer facilities. Thus while the need for modern, efficient and adequate educational facilities are of paramount importance, the necessity of providing these at an absolute minimum cost is a most vital necessity.

The above assumed conditions have had great influence in the development of this design.

The climate of the major portion of New York State, and in some years the entire state with the possible exception of Long Island, is such in the winter time as to preclude the use of a very open design and plan which are both attractive and economical, but are appropriate only in California or Florida or other states with similar climates.

A much more compact plan, greatly reducing many winter problems, embodying lower heating and exterior maintenance costs, seems most desirable for the type of communities previously described.

The possibility of separate buildings connected by open corridors has, therefore, been eliminated from further consideration and every effort has been made to develop a compact plan, and yet one with the possibility of an attractive exterior as well as pleasant interior surroundings for the teachers and pupils.

It is most essential, however, that all facilities be planned giving every opportunity for the best possible education at the Junior High School level and permitting efficient use of all educational areas over the entire life of the building, and with sufficient elasticity so that they may readily and successfully meet rapidly changing educational programs and methods without costly changes.

The design has been prepared on the basis of the above theory of need and probable use.

2. Design Background

The development of the design required much research in the problem of modern educational facilities for a Junior High School to be constructed in this general area. The methods included a thorough study and review of the many recent publications covering the particular problems of the adolescent of today, the requirements of the Junior High School of today, and also the probable requirements of the Junior High School of the future insofar as they may be foreseen at the present time.

Many studies were made by the Architects and discussed with educators whose opinions were obtained and weighed to determine their relative importance .

During the design period opinions of teachers, parents and contractors were obtained and analyzed by the Architect. A wide range of educational and architectural publications were consulted, both those dealing with the school building from an educational point of view, and also those having to do with new methods of construction and new materials which are constantly being developed and called to the attention of the architect.

The Junior High School has the segregation into instruction units of 20 to 30 students of the elementary school, and the changing classes of the senior high school, and forms a bridge between the two kinds of instruction. In its design a number of considerations were taken into account.

a. Community participation.

The gymnasium, auditorium or cafeteria may be isolated from the remainder of the school and used for evening programs.

The physical education area could, in the future, easily be adapted for the addition of a natatorium.

Reinforcement of the foundation walls and first floor slab provides a fallout shelter for the use of the pupils and staff.

The auditorium is an important meeting place for community and school groups.

b. Changing educational procedures.

Team teaching methods would, it is thought, have a limited application at the junior high school level. The student needs the individual attention of a teacher working with him in a basic program. The specialization will come in senior high school. For this reason there do not appear in this plan cubicles, seminar rooms and large group instruction facilities except for the Auditorium.

c. Novel architectural forms

The cluster plan. This type of plan with its extended corridors would be likely to produce a higher per student cost which might make the plan less suitable as a standard plan for New York State.

The air-conditioned school. A negligible number of New York State schools are designed for 12 month operation. The Education Department program is based on a year of 180 days. The school is not operating a basic program in July and August when air-conditioning would be helpful. For this reason the school is not planned for air conditioning. If New York had the climate of Texas, windowless classrooms in an air-conditioned warehouse plan might be considered.

The finger plan. A modified finger plan has been adopted. No corridor is over 400 feet long. The entire school is 406'-8" x 431'0" and core facilities are within easy reach of each recitation room. It will not be necessary, as it is in some new high schools, for a teacher to walk a quarter mile to the cafeteria at lunch period (taking five minutes), eat her lunch from a paper bag to save time in the cafeteria line, and return another quarter mile to her classroom.

Unusually shaped classrooms. Some featured high school plans are showing two related trends.

1. Minimum of corridors. Students circulate from room to room without corridors, so that some rooms are four rooms away from corridors. In this sort of plan it would be extremely difficult to exercise any control over the students.

2. Unusually shaped classrooms. Classroom cases, desks and chairs are usually constructed in rectangular shapes. Rooms of the same shape minimize expensive custom fitting.

d. Design as Developed.

In general, the aim of developing this design has been to achieve a tight compact plan of a reasonably open and flexible character. These two aims are not as irreconcilable as may appear as will be seen by a careful study of the plan. All corridors throughout the building have a double use with a resulting considerable

reduction in corridor length, area and cost. Modern design and lighting permits the use of all areas not window lighted through the use of plastic skylights, which not only give excellent light, but today are made completely leakproof. This again aids in reducing corridor length and improving the efficiency of the plan.

3. General Description of Plan Arrangement

In general the classrooms have been placed in three wings which all open off the main corridor with ample courts between the wings.

The general science rooms, four in number, have been placed adjacent to all three wings.

The auditorium entrance is adjacent to the centrally located principle public entrance; the gymnasium in a somewhat remote location to avoid noise disturbance at the left end of the building and adjacent to possible parking. The craft areas and cafeteria also somewhat noisy are placed at the right end of the building. Administration and Health, Library and Music are centrally located with Music adjacent to Stage.

a. The educational areas are closely related so as to eliminate long travel from class to class between periods.

b. The three classroom wings will permit either a program with pupils grouped in wings by grade; the ninth grade taking the center wing, or grades may be located using a mixed arrangement in the three wings, or will still be suitable if the program of an ungraded junior high school is adopted.

c. Ample access to and exit from the building has been developed in the plan.

Direct access by the Public to the Auditorium Lobby.

Direct access by the Public to the Gymnasium.

Bus loading and unloading at the bus entrance entirely away from the private car access which would be at the main entrance.

Deliveries to kitchen and storage areas at one receiving platform.

Direct access to shops by cars and trucks.

Easy exit from locker rooms to playground.

Rapid exit from three classroom wings to playground.

Exit from all large rooms such as gymnasium, auditorium, cafeteria, music room, and shops.

d. The plan of the building is developed so as to avoid congestion in any one area, and to distribute the traffic as evenly as possible. In any passage where pupils pass in two directions sufficient width has been provided to avoid crowding.

e. Corridors are controlled by gates which will close off all corridors from the main corridor and close off either the gymnasium, auditorium or cafeteria in case of evening use of these areas.

f. The use of acoustic material in corridors will reduce the noise level considerably and result in a quiet school when in session, with a consequent more orderly atmosphere during the changing of classes, and at times of public use of the building.

g. The craft areas with many related activities have been grouped to give easy inter-relationship.

h. The shops have been so planned as to permit the extension of the corridor through this area should the shops be converted to other uses, and in case an addition is required in the future on this wing. One of the basic reasons for this arrangement is the present day trend to reduce the shop program very considerably, and confine industrial arts to the teaching of the constantly broadening subject of the use of tools.

4. Design Provisions

a. Television - present

Outlets available in each classroom and other places of assembly.

Television - future

Space will be available for electrical and coaxial cable connections which will permit of widely extended television instruction whenever such instruction becomes

b. Teaching Machines

Each year it becomes more obvious that a quick way to close the educational gap in education in the United States caused by the tremendous explosion in public school population and the shortage of qualified teachers is through the use of teaching machines.

These may be simple and used in standard class rooms or extremely complex for use with larger groups. The possibility of gathering together large and small groups will permit the use of these machines to a greater extent every year.

Space above all educational areas will permit wiring for machine and electronic teaching as these methods develop and expand in that outlets may be placed at any location on any floor.

c. Physically Handicapped

The building as planned is one-story with no steps within the building, and with a ramp at one entrance for wheel chair access.

One wheel chair, toilet stall and one lavatory have been provided in one boys' and one girls' toilet room on first floor and one 30" high drinking fountain is placed nearby for the physically handicapped.

5. Provisions for Fallout Protection

The dual use fallout shelter included in this school was developed by the D. P. W. in cooperation with the Education Department and can be utilized in a variety of ways to augment the school program and the affairs of the community. Suggested functions which the shelter space might serve are: meetings of scout groups on all age levels, meetings of other community organizations and school purposes such as student government quarters, publications rooms, recreation, areas for a variety of remedial purposes, administrative offices, large group instruction and audio-visual activities.

The plans for the shelter are architecturally and mechanically complete with the exception of the structural design for the subgrade work. This work is to be completed by the adapting architect to meet whatever the existing soil conditions might be.

The size of shelter space, the capacity of the mechanical systems, and the provisions for food and water storage are based upon the expanded capacity of the school with a proper allowance for teachers and staff. Any special conditions which will affect the capacity of the school will require changes in these factors of the fallout shelter design.

The location of the shelter under the building was made to obtain the best protection at the lowest possible cost. A change in the location of the shelter will necessitate additional shielding design. Shielding has been obtained by both separating with distance and with mass, the planes on which radioactive particles will rest in relation to the shelter area. It is to be noted that any dimensional or material changes in the area above the fallout shelter may affect the shelter design. For this reason the minimum mass of the interior partitions, floor construction, and total overhead construction upon which the shelter calculations have been based are indicated on the drawings. If materials of lesser mass than the tabulated values are used redesign of shelter will be required. It also has been assumed in the calculations, that finish grade is never below the bottom of the first floor slab around the shelter area. It is, therefore, necessary to maintain this grade in order to avoid redesign of the shelter.

The shelter plan indicates emergency water supply in a group of tanks within adjacent crawl space. Wherever an adequate supply of well water can be obtained it is suggested that the adapting architect substitute it as the fallout shelter water supply. The plans show self-contained toilet facilities in the form of sanitary tanks fitted with toilet seats. Wherever a septic tank and leaching field are available and the supply from the well is adequate, it is suggested the adapting architect substitute a system using periodic flushing of waste. Generator capacity should be checked, however, to be sure that an adequate power supply is made available, during the emergency period, for these possible substitutions.

The shelter area is designed for a minimum protection factor of 100 by use of "Design and Review of Structures for Protection from Fallout Gamma Radiation", an official Office of Civil Defense, Department of Defense Publication. In this respect it meets requirements of the New York State Civil Defense Commission.

Any changes to the shelter as specified and shown on the drawings should be discussed with and approved by the New York State Civil Defense Commission.

6. Description of Modular Method of Design

The Modular Method used in preparing these drawings conforms to the American Standard Basis for Coordination of Dimensions of Building Materials & Equipment (A 62.1-1956).

This system of dimensioning is used for greater efficiency in construction - less cutting, fitting and waste of materials and less chance of dimensional errors. The Modular Method uses a horizontal and vertical grid of reference lines. The grid lines are spaced 4" apart in length, width and height and all dimensions are referenced to the grid line.

7. Design for Future Growth

The architectural design has been prepared so as to permit of an addition to increase the capacity of the school building from 800 to 1000 pupils without any alteration to the original building.

All facilities such as Cafeteria (planned for 1000 pupils in three shifts), Gymnasium, Auditorium, Shops, Library, etc. are planned to provide for 1000 pupils, therefore, the proposed addition consists of 5 Recitation Rooms, 2 Science Rooms, Boys and Girls Toilets, Teachers Room and Storage Area.

At the time this addition is constructed, the number and character of rooms may be modified at the discretion of the Board of Education.

This addition does not in any way affect the architectural or structural work of the present proposed building.

The mechanical and electrical work is so planned as to permit picking up the addition with a minimum of changes in the present proposed building.

Should the addition required be greater in extent than that proposed above it may be readily increased without any great difficulty up to the maximum capacity of the mechanical facilities.

8. Final Drawings

The final drawings submitted herewith are the result of many studies and the further development of these studies as the designs have gradually taken more detailed form.

The educational reasons for the selection of the design are based on a careful study of the requirements as set forth by the State Education Department and further on the present and probable future trends in junior high school educational and teaching methods.

This makes the problem extremely difficult as we are in the process of a major new look at educational methods which will require a great elasticity in the plan to permit the teaching organization to successfully meet the challenge. The previously standardized and rigid program is gradually becoming more fluid in an effort to make the prime purpose of the program the pursuit of intellectural excellence. This requires a much more fluid plan.

The growing demands from industry for a far greater numbr of men and women of highly developed and disciplined intellects has backed up into the public schools, making it essential to modernize the entire public school educational program. The far reaching changes which will develop during the probable life of the proposed building still further necessitate a fluidity of design.

During the next decade teaching methods and consequently teaching equipment will be drastically altered. The planning problem is how to meet this challenge and yet provide suitable areas for the programs now in use.

The drawings are an attempt to properly solve this problem.

9. Building Materials

Exterior Walls:

Are constructed of 4" face brick and 8" concrete or haydite auto-claved block backup. Face brick is bonded to backup block by a flemish bond header brick every sixth course. All lintels at masonry openings are covered with flashing.

Type of Windows:

Meet the Aluminum Window Manufacturer's Association Specification P-A2 quality approved; overall front to back depth through frame and tubular ventilator shall be not less than 1-5/8".

Character of Operation of Windows:

The lower section of window will have an inswing bottom hinged projecting ventilator, with sliding friction pivots, non-metallic shoes and adjustable compression springs.

Floor Finishes:

In general, floor finish is resilient tile (1/8" thick vinyl asbestos). Wet areas such as toilet rooms, showers, etc. are non-slip ceramic tile.

Interior Partitions:

Are constructed of concrete or haydite autoclave block units with concaved tooled mortar joint.

Finish of Partitions:

Masonry partitions are painted, where called for on Room Finish Schedule, with two coats of alkyd resin flat enamel.

Sound Insulation:

Corridor ceilings in general have a suspended mechanical spline ceiling system with a 3/4" x 12" x 12" incombustible factory painted acoustic tile having a maximum noise reduction coefficient of 75% by AMA test.

10. Structural Design

The first floor will be generally concrete slab on gravel fill and concrete flat plate over fallout shelter. The use of beams in conjunction with this is dictated by conditions of framing. This system is economical in cost.

Slab on gravel fill has proven more economical in many school buildings in the recent past than any other system.

The concrete floor system as planned and detailed allows for immediate start of construction, and during the period when the floor system is being placed, there is time for the fabricators to fabricate the roof system so that erection may follow quickly, and the building placed under roof early in the building program permitting continuous construction regardless of weather.

The skeleton construction instead of wall bearing allows early enclosure of the building and also permits better framing for lateral forces so necessary in large areas without masonry.

The roof system is steel deck on steel joist with 20 year bonded roof.

Consideration was given to other types of structural systems for the roofs, but experience indicates that the lighter the system of construction, the lower the over-all cost. The roof framing system as planned allows the maximum flexibility for future change in partitions.

The elimination of all load bearing walls contributes to the elasticity of the building, a requisite in educational buildings in these times of rapidly changing teaching methods.

Where 4" square tubular columns are used they will be designed for any eccentricities in loading and for wind forces applicable. Where necessary these columns are to be concrete filled.

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Corridor ceilings in general have a suspended mechanical spline ceiling system with a 3/4" x 12" x 12" incombustible factory painted acoustic tile having a maximum noise reduction coefficient of 75% by AMA test.

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The elimination of all load bearing walls contributes to the elasticity of the building, a requisite in educational buildings in these times of rapidly changing teaching methods.

Where 4" square tubular columns are used they will be designed for any eccentricities in loading and for wind forces applicable. Where necessary these columns are to be concrete filled.

11. Heating and Ventilating Work

The reason for selecting a circulating hot water heating system rather than a steam system is that it is (1) less complicated to install, (2) at least equal in initial cost, (3) it requires less maintenance, (4) it can be operated by an equally skilled custodial force, and (5) it requires a less complicated temperature control system. It includes an outdoor reset for hot water temperature plus standard unit ventilator controls with night set-back.

The system includes the use of standard classroom unit ventilators rather than a central fan with a large amount of duct work, thus saving a considerable amount of space and giving more accurate temperature controls.

The system includes standard steel fire tube boilers, oil fired for #2 oil, which while having a somewhat greater annual fuel cost than anthracite coal, also require far less operating labor.

Since the building may be erected in a location where gas is not available, or if available, may be more costly than oil we are not incorporating in the design the use of combination gas-oil burners. The hot water piping system includes the use of steel welded pipe, duplex circulating pumps, etc.

The temperature control system consists of outdoor control of water temperature and an air system for controlling all unit ventilators and some radiators, all on a control cycle which gives a lower night and weekend temperature. By the use of this system the unit ventilators operate intermittently at night on a re-circulating basis thus requiring no standing radiation in areas having these units.

Fan ventilators on the roof exhaust air from all toilet rooms and wholly interior spaces.

12. Sanitary and Plumbing System.

This is designed to incorporate first quality vitreous floor mounted and wall hung plumbing fixtures, copper water pipe, extra heavy cast iron soil pipe and a separate system of piping for

the sanitary and clear water sewers outletting at two or more points from the building to avoid long runs, excessive loss of pitch and large pipe sizes in the building; the connection outside the building with vitreous pipe to future manholes for connection to a public sewer or to a sewage disposal system as may be required.

13. Electrical System

The electric service is to be brought into the transformer vault at high voltage where Power Company transformers will be located to step the voltage down to a 120/208 volt, 3 phase, 4 wire system for building utilization.

The main switch and distribution panel will be placed in the adjacent electric distribution room. Wiring will be installed in conduits. Circuit breaker panels will be used.

A central controlled sound system with an intercom channel and an emergency disaster kit will be provided. Remote room switches will enable a person to initiate a call to the central sound console over the room reproducer. An emergency telephone will be mounted on the console over which announcements may be made over the entire system as a disaster signal sounded without arranging or setting of console controls.

A continuous ringing, supervised fire alarm system connected to the municipal system will be provided.

A synchronous wired master clock system will be installed with clocks in every class and other rooms.

A power supply generator will be provided for emergency use. Emergency lighting supply for fallout shelter, central controlled sound and fire alarm systems are included.

The lighting system will generally be fluorescent except in storage areas, toilet rooms, boiler room, etc., where incandescent lighting equipment will be used.

The following maintained lighting intensities will be provided:

Classrooms, library, offices, homemaking, art and science rooms	40 foot candles
Corridors	20 foot candles
Gymnasium	30 foot candles
Auditorium	10 foot candles
Cafeteria and Kitchen	20 foot candles
Store rooms, etc.	10 foot candles

Entrance and exterior protective lighting will be provided. Outlets will be located in each teaching area for future T. V. antenna jacks.

14. Cost Factor

The entire program of building construction and finish has been developed and carried into working drawings and specifications in an effort to obtain the most economical building without losing permanent values and taking into consideration the necessi ty of completing a building of absolutely minimum construction cost without resulting in too great an increase in the cost of maintenance.

15. Alternate Bids

The actual cost of the Building Program may be varied at the discretion of the Board of Education using these plans and specifications by taking alternate bids which may somewhat increase the cost, but will reduce maintenance costs and increase the permanence of the finish of the building.

Among these Alternate Bids might be:

1. Terrazzo floors in corridors.
2. Terrazzo floors in cafeteria.
3. Acoustic ceilings in classrooms.
4. Acoustic ceilings in cafeteria.
5. Acoustic ceilings in gymnasium

6. Ceramic tile wainscoting and base in corridors.
7. Structural glazed tile or ceramic tile wainscoting in gymnasium.
8. Painted wall in gymnasium above wainscoting.

It may be that the Board of Education will desire to take these alternate bids and others which may be suggested, and let contracts including some or all of the alternate items should the low bids prove favorable.

16. Architectural Services Required from Adapting Architect.

The adapting architect who is employed by a Board of Education to adapt the Standard School Plan, Type B-1, working drawings to a site selected by that Board will have certain work to do so as to complete the working drawings and specifications and prepare them for the taking of bids and letting of contracts.

These services, in general, are as follows:

1. Obtain a legal and topographical survey of the property.

2. Obtain test borings in the proposed location of the building on the site.

3. Obtain all necessary data on utilities.

4. Prepare a foundation plan and details of foundation construction, reinforcing, etc.

5. Prepare a complete site development plan including grading, driveways, sidewalks, parking areas, site drainage, fire hydrants, site lighting, sewer connections, water supply, gas supply, electrical service, telephone service, storm water disposal and connections.

6. Prepare addenda to specifications covering all of the work listed under 4 and 5 above.

7. Obtain approval from the State Department of Education and all local authorities.

8. Arrange for the taking of bids and letting of contracts. Obtain all required bonds and insurance certificates from the respective contractors.

9. Supervise the construction of the building, check all requisitions from the contractors, and when approved issue orders for payment.

10. Prepare scale and full size details as required, and check all shop drawings.

11. Make final inspection of the building to assure that there has been full compliance with all contract documents.

12. Obtain guarantees from the contractors where called for including bonds on all roofs.

13. Issue final order for payment to the respective contractors.

* * *